1917

ALFALFA

IN THE

SALT RIVER VALLEY *of* ARIZONA

"What Corn is to Illinois, Wheat to Kansas, Cotton to the Gulf States, Alfalfa is to Arizona."

—DR. G. F. FREEMAN
Plant Breeder
Ariz. College of Agriculture

The total cultivated area of Maricopa county is 266,362 acres (nearly 60 per cent of the entire cultivated land of the state), of this 137,747 acres are in alfalfa.

Scientists have found by analysis of soils and soil products, by careful experiments and painstaking observation, that which some farmers learned long ago—namely, that the basis of good sound farming, that produces the most valuable food for live stock and impoverishes the land least is the growing of legumes. The eastern farmer had his red clover, and the southern planter his cow peas, but each knew that the king of all legumes is alfalfa. All over the country from Canada to Mexico, from the Atlantic to the Pacific, progressive farmers are bending every effort to grow alfalfa, but in no section of the United States does alfalfa do as well as in the arid lands where there is water for irrigation. Here the land is naturally rich in lime, potash and phosphorus, and the alfalfa draws from the atmosphere its own nitrogen.

The Natural Home of Alfalfa

Here there is no tedious and expensive preparation of the land necessary, no fertilizing, no liming, no inoculating the seed. All that is necessary is to level the desert land, thoroughly prepare the ground, irrigate and sow the seed, harrowing it in lightly. While alfalfa seems to find its natural home anywhere in the arid southwest, the soil, climate and elevation of the Salt River Valley of Arizona seem to be in all things ideal for the cultivation of alfalfa.

Dr. Freeman in his bulletin, "Alfalfa in the Southwest," says that he finds no mention of alfalfa in the early history of the Valley, and he reasons that the development of the plant here has been almost entirely in the last thirty-five years.

How It Grows

What may one expect to produce from a field of alfalfa? This is best answered by giving the actual experiences of a number of farmers who have made conspicuous suc-

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cesses. There are many others who have done and are doing as well and possibly better.

Data Gathered from Alfalfa Growers in Maricopa County

By W. A. Barr, County Agricultural Agent.

L. E. Froman, Northern Avenue, between laterals 14 and 15, states that he got 5 tons per acre of hay from 160 acres in 1916. He purchased the land in poor condition and considers the yield very satisfactory; also got some pasture from this 160 acres after five cuttings of hay.

The Valley Realty Company's farm of 320 acres (opposite Washington School) yielded this year 1,400 tons of hay, cutting 240 acres five times and 80 acres four times. The latter 80 acres was rented November 1st to February 1st for $20 an acre for pasture.

George L. Freestone (between Mesa and Gilbert) states that five cuttings of alfalfa this year yielded 6 tons per acre on the average.

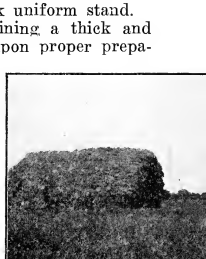
Mr. Hunter at Laveen states that from 40 acres he sold $100.00 worth of hay per acre, counting but four cuttings, which would mean 1½ to 1¾ tons per acre, as this report was gotten about September 15th and all sold had been for less than $20.00 per ton.

C. J. Woods, Supt. of University Agricultural Experiment Station, states: "Alfalfa yields in the county can be increased one-half to three-quarters per acre by—

1. Planting a selected variety of seed.
2. Securing a thick uniform stand.
3. Maintaining a thick uniform stand.

"Securing and maintaining a thick and uniform stand depends upon proper preparation of the seed bed, planting right variety, heavy seeding, planting at right time."

J. A. Merritt, northwest of Glendale, has 19 acres of alfalfa **that is 24 years old.** Discs twice a year generally. Secured five good crops this year. Has produced 7½ to 8 tons per acre. Alfalfa seed growers that have been in-



100,000 Acres of Alfalfa in

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terviewed are the following: Peter Van Leyer, Billy Grantham, Ed Shepard, Bob Bloat, John Norton, H. A. Hammels, George Brown, N. A. Saunders, Jess Lafferty and V. O. Shepard, all in the vicinity of Buckeye. Yields of seed reported vary from 500 to 1,300 pounds per acre from two seed crops, the average being near 650 to 800 pounds per acre.

Costs of Seeding

What does it cost to prepare land and seed to alfalfa? There is comparatively little raw land now which will be seeded, so the cost of plowing, leveling and seeding is all that need be considered, this will run about as follows, varying somewhat according to soil conditions, teams or tractors used, as well as the natural ability of the men employed:

Irrigation (labor and water)	$ .50
Plowing	4.00
Harrowing, leveling and bordering	4.00
Second irrigation	.50
15 pounds of alfalfa seed at 15 cents a pound	2.25
Drilling seed	.75
	$12.00

To this one may figure interest on land costing from $150 to $250 an acre.

Yields

From the first year's seeding yields of 6 tons are on record, possibly this is better than the average, as the first year's crop is not commonly expected to be as much as after it has reached maturity. The second year yields of 6 to 10 tons may be produced by careful management and in addition considerable winter pasturage. The fact that some are producing yields of these figures is proof that it can be done and the fact that some are not producing as much is evidence of the need of better methods.

Salt River of Arizona Alone

Care of Alfalfa Fields

These better methods consist first, of course, in a thorough preparation of the soil, careful and judicious irriga-

tion, cutting just at the right stage, keeping down the growth of injurious weeds by renovation, and above all, by preventing the trampling of the alfalfa by over pasturage of stock or pasturing at the wrong time. Young alfalfa fields should be pastured very little and older fields very carefully. It is a well known fact that in the east alfalfa is speedily killed out if pastured to any considerable extent. Alfalfa here will stand much more pasturage with little or no injury, provided that it is done in the right manner. On this subject Dr. R. W. Clothier, of the office of Farm Management, U. S. Department of Agriculture, says in a recent circular:

"A farm situated near Phoenix, Ariz., is a dairy and stock farm of 160 acres, all in alfalfa. It is divided into eight fields of 20 acres each. All of these fields are pastured more or less at different times during the year, but occasionally the crop is cut for hay, instead of being pastured off. When pastured a field is first opened to dairy cows giving milk. When they have secured the best of the feed they are put into a new field, and dry cows and young stock are turned in to clean up the feed left by the milch cows. When this has been done all stock is taken off the field, which is watered and not pastured again until another crop has matured. When a field is cut for hay the crop is put up quickly with a hay loader, and dry cows and young stock are turned in to clean up waste hay. The field is then watered and all stock kept off until another crop is ready to harvest.

"By this system this farmer keeps the equivalent of 168 full-grown cattle on his farm for 12 months and has 360 tons of surplus feed. This is sold when prices are high, and when prices are low it is fed to fattening steers not included in the above enumeration of animals kept on the farm. The milch cows are constantly supplied with the best feed produced by the farm, thus insuring maximum returns from them, while the dry cows thrive and the young stock grows and develops rapidly on the second-class feed. The stand of alfalfa has been maintained in excellent condition for ten years.

"The system greatly reduces the amount of labor required to operate the farm, although this farm has a total capitalization

of $62,752 and does a business of over $10,000 per year, it is operated by the owner and two grown sons without any expense for outside labor. In the year for which these records were taken, the farm paid 8 per cent on the investment and returned a surplus of $5,242 to pay for the labor of the farmer and his two sons. It should be remembered in this connection, however, that this is a very exceptional case as regards both soil and management. Such returns as these are far above the average."

Practice of Dairymen

With 80,000 dairy cows in the county there is of course necessity for much pasture and most dairymen are following a plan somewhat similar to the one mentioned above. Some have practiced a soiling system, or cutting the alfalfa green and feeding it to the cattle in racks. This results in increasing the carrying capacity of the alfalfa fields about 100 per cent, in other words the same farm will carry nearly double the stock where the alfalfa is cut green and hauled to them that it will where it is pastured. This, however, is where the fields are large and not where a system such as Dr. Clothier describes is followed. The extraordinary amount of labor required for cutting and hauling the alfalfa green has made this system one which is not practicable except when labor can be had at fairly low rates or where hay is very high.

Varieties

The common variety of alfalfa, or Chillian, has been grown almost exclusively until the past few years. Recently it has been found that the Hairy Peruvian yields from 25 to 50 per cent more, and is claimed to have a higher protein content. Mr. C. J. Wood, superintendent of the Mesa Experimental Farm (a branch of the State Experiment Station), has been growing the Hairy Peruvian for nearly ten years and he recently stated in a public meeting that ten tons to the acre each year can be produced by growing this variety and following out approved methods.

Costs of Hay Making

Figuring on the basis of hay production one may calculate the cost of making hay for an acre of alfalfa as follows:

Mowing five times	$ 3.75
Raking five times	2.00
Hauling and stacking	2.50
Water and taxes	4.00
Labor irrigating	1.00
Cultivating	1.00
	$14.25

Profits

One has a right to expect, if he has kept his fields up to the maxium, a yield of six to eight tons an acre. Although hay is selling now for $30 a ton, these prices may be considered to be abnormal, and so we should figure on a basis of normal conditions somewhat as follows:

Seven tons of hay at $15	$105.00
Two months' pasturage for two animals	16.00
Total returns	$121.00
Total cost	14.25
Profit	$106.75

Irrigation and Cultivation

Irrigation here is by the so-called "border" system, the fields being laid off in lands thirty to fifty feet wide, separated by narrow ridges of earth. These ridges or borders may be made flat, so that the alfalfa will grow on them, and in this way no land is wasted. Many farmers make a practice of disking the alfalfa fields in the fall and sowing barley. This serves a double purpose as it gives the alfalfa a cultivation or renovation, and the barley makes with the alfalfa a splendid winter pasture. The first cutting is, of course, a mixture of barley and alfalfa, and, if cut early, this makes hay of superior quality.

Haying Methods

In cutting, the rakes should follow the mowers quite closely to prevent excessive

drying out, and the hay should be stacked as soon as it will do. A method of stacking which is coming into quite common use is to load the hay from the windrow or shocks onto floats; these are simply light drags of inch lumber about eight by twelve feet. These can be loaded very quickly as there is little lifting, as is the case where wagons are used, and they can be quickly pulled to the stack with a load of 800 to 1,000 pounds. By means of slings which are laid on the float before the loading begins, the hay is hoisted to the top of the stack, a hay derrick being used. The same team that pulls the float is attached to the pulley rope that draws up the sling. On the farm of Mr. W. M. Wilkinson, one of the best-known farmers of the valley, 26 acres of alfalfa has been put up by four men and two teams in two days by this method. This is said to be more economical of time than the common buck rake and hay fork method, and also prevents the loss of a great many leaves which inevitably are broken and scattered on the ground.

Under the sunny skies of Arizona in the rich soil of the Salt River Valley, where there is an abundance of water for irrigation from the Roosevelt reservoir, alfalfa finds a natural home where maximum crops may be assured and where a market awaits the producer, either as hay to be shipped out or for feeding to dairy cattle or range steers. Where else is there a section that can produce bigger crops or which, considering the value of the land, returns better profits?

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